Timing Proposal for NML/ASTA

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- 2 Rep Rate Generators exist, each with 16 events
- Line lock between them is not guaranteed
- Event generation priority is in descending order (e.g. $AF is highest, $A0 is lowest)
- 4 variable rate events exist: $AC, $AB, $C0, $C1

Event	Source	Description
$A1	K6 RF	Cryomodule RF Present, Klystron 6
$A9	RRG1	"0.1 Hz"; synchronized to AC line and RF Master Oscillator, triggered by Rep-Rate Generator 1
$AA	RRG1	"1 Hz"; synchronized to AC line and RF Master Oscillator, triggered by Rep-Rate Generator 1
$AB	RRG1	Rate N"; synchronized to AC line and RF Master Oscillator, triggered by Rep-Rate Generator 1; Cryomodule Commissioning Selectable rate: 0.2, 0.5, 1, 2, 2.5, 5, or 10Hz;
$AC	RRG1	Rate M"; synchronized to AC line and RF Master Oscillator, triggered by Rep-Rate Generator 1; RF Gun Commissioning Selectable rate: 0.2, 0.5, 1, 2, 2.5, 5, or 10Hz;
$AD	RRG1	"2.5 Hz"; synchronized to AC line and RF Master Oscillator, triggered by Rep-Rate Generator 1
$AE	RRG1	"5 Hz"; synchronized to AC line and RF Master Oscillator, triggered by Rep-Rate Generator 1
$AF	RRG1	"10 Hz"; synchronized to AC line and RF Master Oscillator, triggered by Rep-Rate Generator 1
$C0	RRG2	Rate M"; synchronized to AC line and RF Master Oscillator, triggered by Rep-Rate Generator 2; RF Gun Commissioning Selectable rate: 0.2, 0.5, 1, 2, 2.5, 5, or 10Hz;
$C1	RRG2	Rate N"; synchronized to AC line and RF Master Oscillator, triggered by Rep-Rate Generator 2; Cryomodule Commissioning Selectable rate: 0.2, 0.5, 1, 2, 2.5, 5, or 10Hz;
$C2	Timer	Conditioning Event, referenced to event $C0
$C3	Timer	Conditioning Event, referenced to event $C1

$A0, $A2 - $A8, $C4 - $CF are undefined at this time.

1) Use **$An** events for **beam operation**

2) Use **$Cn** events for **commissioning/other asynchronous operation**

3) Assume **5ms** canonical delay between **arming events** and **actual beam**

4) Default **Laser** rate is **5 Hz**

5) **RF** systems will run at **variable** rates as programmatic needs dictate, typically 1, 2.5, or 5 Hz

6) **$AE** is the **master** timer for the **Laser** (with appropriate delay) and **drives all timing**

7) **$AC** serves as the **operational systems trigger** for RF systems: Gun, CC1 &2, CMn's and diagnostics. Its **variable** rate is determined by **operational demands**.

8) **$A8** = $AC + 5ms is the **'beam'** and RF pulse **trigger**